



ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS

June 11, 1997

JUN 11 1 08 PM '97

Mr. Tim Cropley  
Vermont Department of Environmental Conservation  
Waste Management Division  
103 South Main Street/West Office  
Waterbury, VT 05671-0404

Re: Pauline Whipple Property • Richmond Vermont  
Subsurface Investigation Report & Request for Authorization for Soil  
Disposal  
VT DEC Site #97-2138  
State Farm Insurance Claim #45P706397  
ATC Project #42238-0001

Dear Mr. Cropley:

Please find enclosed the results of the additional subsurface investigation performed at the above referenced site by ATC Associates Inc. (ATC) on May 12 and 13, 1997. As noted in this report the kerosene contamination appears to be primarily limited to the release area. As such ATC has recommended and formally requested authorization to proceed with a soil mitigation to remove and dispose off site the impacted soils. These soils will be recycled via thermal incineration at Environmental Soil Management Inc. (ESMI) at their Loudon, New Hampshire Facility. The tentative date for this soil mitigation is set for Tuesday June 17, 1997. Please contact me at your earliest convenience so that we may discuss this mitigation and confirm authorization for disposal.

Thank you for your cooperation.

Sincerely,

ATC ASSOCIATES INC.

*John C. Roman*  
John C. Roman  
Environmental Specialist

enclosure

cc: Ms. Pauline Whipple  
Ms. Tracey Dingeman, State Farm Insurance





ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS

June 11, 1997

Ms. Tracey Dingeman  
State Farm Insurance Company  
75 Roosevelt Highway  
Colchester, VT 05446

RE: Subsurface Investigation Results  
Pauline Whipple Property  
152 River View Road  
Richmond, Vermont  
ATC Project #42238-0001  
VT DEC Site #97-2138  
State Farms Claim #45P706397

Dear Ms. Dingeman:

This report follows the ATC Associates Inc. (ATC) subsurface investigation conducted at the property referenced above (the site) on May 12 and 13, 1997. This investigation is pursuant to ATC's proposed work scope outlined in our proposal #63-97-054 dated April 7, 1997. This work was performed to evaluate the subsurface impact caused by the leak of kerosene heating oil from an above ground storage tank (AST), formally located at the rear of the mobile home owned by Ms. Pauline Whipple.

The loss of kerosene was first noticed on January 22, 1997 and the tank was immediately closed and replaced by another above ground tank now located in the front of the mobile home. The estimated loss of kerosene is between 100 and 175 gallons and is based upon the last refill date of December 18, 1996 when 150 gallons of kerosene was placed in the former storage tank. Mr. Tim Cropley of the Vermont Department of Environmental Protection (VT DEC) was informed of this kerosene loss.

A preliminary investigation to evaluate the subsurface immediately adjacent to the former location of the kerosene tank was conducted by ATC on February 7, 1997. The results of this initial investigation which utilized five hand augured soil borings (SB-01 through SB-05) are detailed in ATC's Report dated February 12, 1997. The results of this initial investigation indicated kerosene impact down to ground water and determined that further subsurface investigation would necessary to further define the extent and degree of such impact. In his letter dated March 10, 1997, Mr. Cropley of the VT DEC concurred that further investigation should proceed. Mr. Cropley also reviewed and approved ATC's April 7, 1997 work plan for this next phase of investigation, as noted in his April 15, 1997 letter.



On May 12, 1997 monitoring wells MW-1, MW-2 and MW-3 were installed on site to determine ground water flow direction and gradient as well as to determine the dissolved and/or liquid phase petroleum impact to ground water. MW-1 was installed approximately 20 feet north-northwest of the release area; MW-2 was located approximately 40 feet northeast of the source area; and, MW-3 was placed in front of the mobile home approximately 40 feet southwest of the release area. Please refer to the attached Site Diagram included with this report for locations of monitoring wells and other significant site features.

During each soil boring, conducted in preparation of monitoring well installation, a minimum of two split spoon soil samples were obtained at various depths below ground surface (bgs). After noting the geological content of each spoon, soil grab samples from these spoons were screened by an HNu PI 101 photoionization detector (PID) by head space method to determine the existence and degree of volatile organic compound (VOC) impact to soil at each sample point.

Two split spoons obtained from Soil Boring 6 (SB-06), to be utilized for MW-1, revealed fine and very fine sand at 10 to 12 feet bgs and silt with trace amounts of very fine sand at 19 to 21 feet bgs. Headspace PID analysis of soil from these two spoons were found to be non-detect (ND) with regard to the presence of VOCs. Two split spoons obtained from SB-07, to be utilized for MW-2, consisted of very fine sand and silt at 15 to 17 feet bgs and silt at 20 to 22 feet bgs. Again, PID headspace analysis did not reveal the presence of VOCs in these soil grab samples. During the boring of SB-08, to be utilized for MW-3, three split spoon samples were obtained. The first spoon obtained from 5 to 7 feet bgs consisted of olive brown silt with some very fine sand, while a spoon withdrawn from 15 to 17 feet bgs consisted of uniform silt and the last spoon withdrawn from 20 to 22 feet bgs consisted of primarily silt with a few very fine sand lenses. All soil grab samples obtained from SB-08 were found to be non-detect regarding VOCs. Soil obtained from SB-06 and SB-07 were noted to be slightly moist to moist, while soil extracted from SB-08 were found to be very moist to wet. No petroleum odor was noted from soils associated with borings SB-06, SB-07 or SB-08.

After completion of each boring, a PVC monitoring well consisting of slotted screen, which was wrapped in filter sock, and flushed threaded well riser was placed into each boring. Where possible native sand extracted from the boring was placed back into the boring annulus first around the screened portion of the well to further assist in prohibiting silt from penetrating each well annulus. For MW-3 one bag of drillers sand was also utilized. All monitoring wells were completed at 20 feet bgs. Please refer to the Soil Boring Logs attached with this report, which detail all soil types encountered and also shows well construction.

Following the monitoring well installations, two additional borings (SB-09 & SB-10) were completed into the release area with a hand auger to 11.0 and 12.0 feet bgs respectively. These auguring were conducted to re-evaluate subsurface conditions at the sources area, but more importantly to secure soil samples for PID headspace analysis and follow up laboratory waste identification analysis in preparation for

upcoming soil mitigation and disposal activities. Nine soil grab samples were field analyzed by PID and revealed VOC concentrations to range from 11.0 PPM to 260.0 PPM. Soil encountered during these borings consisted of sand to approximately 10 feet bgs, with silt and silt-clay to 12 feet bgs. Please refer to Table 1, attached to this report which details soil types and VOC concentrations encountered during the hand auguring of SB-09 and SB-10. A soil composite sample consisting of eight of the nine grab samples obtained during the auguring of SB-09 and SB-10 was analyzed for VOC's by EPA 8260, for Total Petroleum Hydrocarbons (TPH) by EPA 8100. Also, the grab sample showing the highest VOC concentration by field headspace analysis, was laboratory analyzed for flash point. The results of these analyses are included in an Analytical Results Summary Table included with this report as Table 3. Hard Copy Results of these laboratory analyses are included in Appendix 1.

On May 13, 1997, ATC returned to the site to conduct ground water measurement and sampling at the three monitoring wells. Ground water was encountered within all monitoring wells, however insufficient water volume prevented the acquisition of water samples from MW-1. Ground water was encountered in MW-1 at 19.94 feet bgs (representing a water column of approximately 0.06 feet in thickness) or at 78.70 feet relative to a 100 foot datum. Ground water was encountered in MW-2 at 18.03 feet bgs (representing a water column of approximately 1.97 feet in thickness) or at 80.28 feet relative to a 100 foot datum. Ground water in MW-3 was measured at 19.91 feet bgs (representing a water column of approximately 0.09 feet in thickness) or at 78.81 feet relative to a 100 foot datum. Based upon these measurements ground water flow direction appears to be to the west-northwest toward the Winooski River drainage basin at a vertical gradient of approximately 3 percent. ATC did not note any petroleum sheen or odor associated with ground water within these wells. Please refer to Table 2 which summarizes all ground water data and also refer to the ground water gradient map included as Figure 2 which depicts ground water flow direction.

Two ground water samples were secured from MW-2 for analysis by EPA 8260 (WS-01) for VOC analysis and by EPA Method 8100 (WS-02) for total TPH analysis. Due to insufficient ground water volume at MW-3, only one water sample (40 ml) was secured for analysis by EPA 8260 (WS-03), while a 1 liter water sample volume necessary for the EPA 8100 analysis was unobtainable. Similarly, due to insufficient water volume at MW-1, no water sample could be obtained, however soil existent from the bottom split spoon sample, representing 19 to 21 feet bgs from SB-06, was analyzed for TPH and VOCs. All samples were delivered to Endyne, Inc. of Williston Vermont under chain of custody protocol. The results of these analyses are included in an Analytical Results Summary Table included with this report as Table 3. Hard Copy Results of these laboratory analyses are also included.

Investigation at this site to date has revealed the presence of three underground utilities. The first exists as the septic feed from the homes septic tank located adjacent the north rear porch entry to the mobile home. This septic line runs westerly off site and where it turns southwesterly at and beneath Riverview Road eventually connecting to a main distribution box approximately 200 feet

from the site. The septic line consists of four inch PVC type material and is approximately one to two feet bgs. The second utility line is the water feed to the mobile home. This water line is located in front of the home and perpendicular of the structure approximately 12 feet east of the west end. The line consists of 3/4 inch copper, located approximately 5 feet bgs, and runs from the home in a south-southeasterly direction. The third underground line exists as the TV cable which runs diagonally in a northerly direction from Riverview Road to a utility pole (which supports overhead electrical service to the home) located adjacent the west end of the mobile home. The depth of this cable is not known, however since it crosses the water line, it is likely the cable is set shallow beneath the ground surface: i.e. less than 5 feet bgs.

Visual inspection of the site on May 12, 1997 revealed a section of dead grass which outlines the impacted area associated with the spill. The circular area measures approximately 10 feet in diameter. Approximately six feet north-northwest of this outline there was also observed a woodchuck hole. On a previous visit to the site to conduct a walkover with a subcontractor, ATC observed a wood chuck perched from this hole. The presence of wildlife within close proximity of the spill area may indicate the impact associated with the spill maybe limited.

On May 13, 1997, ATC completed a site survey of significant site features for the development of a Site Diagram included as Figure 1. Spatial relationships between site features was determined using a measuring wheel. Monitoring well top of casing (TOC) measurements were determined using a survey transit. All TOC measurements were referenced to an 100 foot datum point designated as a spike driven into the utility pole located upon the site.

Also on May 14, 1997, ATC conduct an indoor air quality survey utilizing the Hnu PID. This survey consisted of monitoring ambient air throughout the mobile home at floor level and at windows and doorways where fugitive kerosene odors might be entering the home. This survey did not reveal detectable VOCs by PID on May 14, 1997. An additional indoor air survey will be conducted following the upcoming soil mitigation work.

The results of the investigation have indicated the following:

- Soils at the source area have been impacted by kerosene. A composite soil sample obtained for pre disposal waste analysis indicates the presence of VOCs in soils at the source area including 10 different compounds which are among the constituents making up kerosene. Soil auguring grab samples obtained from the source area during May 12, 1997 revealed PID readings ranging from 11 PPM to 260 PPM. In his letter of March 10, 1997, Mr. Tim Cropley of the VT DEC stated that soils above the SMS guideline of 10 PPM (by PID) should be removed. Analytical results of one grab sample from SB-10, which revealed 260 PPM by PID headspace analysis, was laboratory analyzed to show the soil to have a flash point greater than 158 degrees Fahrenheit.

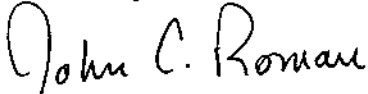
- Analysis of ground water samples obtained from MW-2 and MW-3 revealed low level impact to ground water likely the result of the kerosene spill. However, the compounds detected showed concentrations which are below Primary Ground Water Quality Enforcement Standards (VT DEC Water Supply Division, Ground Water Protection Rule & Strategy, 1988). A soil sample obtained at depth from the boring slated for MW-1 and analyzed by EPA 8260 and EPA 8100 for TPH did not reveal detectable concentrations of VOCs. TPH analysis of a water sample obtained from MW-2 resulted in concentrations below a detection limit of 0.8 ug/l. These results suggest the more significant impact to be limited to the source area. Upcoming excavation of the source area combined with PID monitoring of the excavation pit to remove VOC impacted soil will likely reduce the potential of increased ground water impact. The need for future ground water monitoring will be based upon the results of the upcoming soil migration and associated soil analyses.
- Soils encountered during investigation at this site to date consists of sand and silt. The sand component was encountered primarily with SB-06 and SB-07, and at the source area (SB-01 - SB-05 completed in February, 1997 and SB-09 & 10 completed with this phase of investigation) through 12 feet bgs. The silt component was encountered at depths greater than 10 feet bgs for borings completed at the rear of the mobile home, while SB-08 completed at the front of the home, encountered a nearly homogenous silt component nearer the surface at between 5 to 7 feet bgs. According to the Soil Survey of Chittenden County Vermont (U.S. Department of Agriculture, Soil Conservation Service, 1967) the underlying lithology of the area is comprised of; 1) Nearly level to steep, well-drained to somewhat poorly drained loamy or loamy clayey soil associated with the Hartland -Belgradew Munson formation, and; 2) Level to steep, excessively drained sandy soils on deltas, old lake beaches and terraces associated with the Adams-Windsor formation.
- Ground water was encountered at approximately 20 feet bgs. Based upon monitoring conducted at three monitoring wells installed for this investigation, ground water appears to be flowing to the west-northwest at a gradient of approximately 3 percent.
- The results of this investigation suggest the greatest kerosene impact to be limited to the source area. Ground water samples obtained from wells outside the impact area show trace or non-detectable levels of kerosene compounds when laboratory analyzed. Soil samples obtained during borings for these monitoring wells, which were either field analyzed by PID and/or laboratory analyzed did not reveal VOC impact. Environmental indicators observed at this site suggest the impact to be limited. ATC recommends that the soil mitigation proceed to reduce future potential increased impact to the ground water from the source area. Upon review of this report and associated laboratory analyses by the VT DEC and their agreement and authorization, the soil mitigation activities will commence. Soil will be excavated and placed in

Ms Tracey Dingeman  
June 11, 1997  
Page 6 of 6

transport trailers for incineration at Environmental Soil Management Inc. at their Loudon New Hampshire facility.

The soil mitigation is tentatively scheduled to take place on Tuesday, June 17, 1997. ATC will contact you to confirm this date. Please contact me or Tom Broido if you should have any questions. Thank you for allowing ATC to be of service.

Sincerely,



John C. Roman  
Environmental Specialist

attachments

cc: Mr. Tim Cropley, VT DEC  
Ms. Pauline Whipple

## TABLES



TABLE 1

SUMMARY OF SOIL BORING RESULTS (SB-09 &amp; SB-10) • MAY 12, 1997

PAULINE WHIPPLE PROPERTY

RICHMOND, VERMONT

Page 1 of 1

Soil Boring #	Soil Grab Sample #	Soil Sample Interval (ft-bgs)	Soil Description	PID* Headspace Result (ppm)
SB-09	1	3.0 - 4.0	Light brown sand, dry & loose	32.0
	2	5.0 - 6.0	Light brown to medium brown fine & medium sand Slightly damp, mostly loose.	24.0
	3	8.0 - 9.0	Brown sand over grey-brown silt & VF sand, moist.	200.0
	4	10.0 - 11.0	Olive silt with some very fine sand, moist.	28.0
SB-10	1	1.0 - 2.0	Light brown sand, trace loam, damp but loose.	260.0
	2	4.0 - 5.0	Brown sand, dry & loose.	240.0
	3	6.0 - 7.0	Tan sand and very fine sand, slightly damp, loose.	215.0
	4	9.0 - 10.0	Olive-brown silt with trace very fine sand slightly moist to very moist.	68.0
	5	11.0 - 12.0	Olive and grey sily over grey silt-clay. Slightly moist & firm. Frequent orange mottles.	11.0

\* HNu Model PI 101 PID with a 10.2 ev lamp, calibrated w/ isobutylene referenced to benzene.

Soil grab Sample #1 (1.0 - 2.0 bgs) from SB-10 was submitted for laboratory analysis for ignitability.

All grab samples except grab sample #5 from SB-10 were combined as a composite sample and laboratory analyzed for VOCs by EPA 8260 and for TPH by EPA modified method 8100.

Table 2 • Monitoring Well Data & Groundwater Elevations

Pauline Whipple Property • Richmond Vermont

May 1997 Monitoring Round • Page 1 of 1

Well	Elevation at top of Casing [1] (feet above MSL) [3]	Date	Depth to Free Product (feet)	Free Product Thickness (feet)	Depth to Water (feet below top of casing)	Uncorrected Groundwater Elevation (feet above MSL)	Corrected Groundwater Elevation [2] (feet above MSL)
MW-1	101.45	13-May-97	-	-	22.75	78.70	-
MW-2	101.31	13-May-97	-	-	21.03	80.28	-
MW-3	100.82	13-May-97	-	-	22.01	78.81	-

MSL - Mean Sea Level

[1]-As measured by ATC, May 1997

[2]-Correction for free product assumes a density of 0.88.

[3]-Relative to assumed 100 foot datum: Benchmark-- driven spike in utility pole on site.

TABLE 3  
SUMMARY OF GROUNDWATER RESULTS • EPA 8260 & MODIFIED EPA 8100

SAMPLE DATE: MAY 13, 1997

PAULINE WHIPPLE PROPERTY • RICHMOND VERMONT

Page 1 of 2

SAMPLE LOCATION	SAMPLE NUMBER	SAMPLE MATRIX	COMPOUND	RESULT	UNIT	GROUND WATER ENFORCEMENT STANDARD (ug/L)*	PREVENTATIVE ACTION LIMIT* ACTION LIMIT (ug/L)*	LABORATORY DETECTION LIMIT
SB-06 (19-21 Ft. bgs) (MW-1)	SS-03	SOIL	Benzene	ND	ug/kg	N/A	N/A	10 ug/kg
			Toluene	ND	ug/kg	N/A	N/A	10 ug/kg
			Ethylbenzene	ND	ug/kg	N/A	N/A	10 ug/kg
			Total Xylenes	ND	ug/kg	N/A	N/A	20 ug/kg
			sec-Butylbenzene	ND	ug/kg	N/A	N/A	10 ug/kg
			Isopropylbenzene	ND	ug/kg	N/A	N/A	10 ug/kg
			p-Isopropyltoluene	ND	ug/kg	N/A	N/A	10 ug/kg
			Napthalene	ND	ug/kg	N/A	N/A	50 ug/kg
			n-Propylbenzene	ND	ug/kg	N/A	N/A	10 ug/kg
			1,2,4-Trimethylbenzene	ND	ug/kg	N/A	N/A	10 ug/kg
MW-2	WS-01	WATER	1,3,5-Trimethylbenzene	ND	ug/kg	N/A	N/A	10 ug/kg
			TPH	ND	mg/kg	N/A	N/A	10 mg/kg
			Benzene	TBQ	ug/l	5.0	0.5	1.0 ug/l
			Toluene	3.0	ug/l	2420	1210	1.0 ug/l
			Ethylbenzene	TBQ	ug/l	680	340	1.0 ug/l
			Total Xylenes	ND	ug/l	400	200	2.0 ug/kg
			sec-Butylbenzene	ND	ug/l	N/A	N/A	1.0 ug/kg
			Isopropylbenzene	ND	ug/l	N/A	N/A	1.0 ug/kg
			p-Isopropyltoluene	ND	ug/l	N/A	N/A	1.0 ug/kg
			Napthalene	ND	ug/l	N/A	N/A	5.0 ug/kg
WS-02	WATER	WATER	n-Propylbenzene	ND	ug/l	N/A	N/A	1.0 ug/kg
			1,2,4-Trimethylbenzene	4.0	ug/l	N/A	N/A	1.0 ug/kg
			1,3,5-Trimethylbenzene	2.0	ug/l	N/A	N/A	1.0 ug/kg
			TPH	TBQ	mg/l	N/A	N/A	0.8 mg/l

Notes:

\* From the Vermont Department of Environmental Conservation's, "Chapter 12 Groundwater Protection Rule and Strategy, Effective Date September 29, 1988".

Shade areas indicate enforcement standard exceedances.

TBQ - Trace Below Quantitation Limit    N/A - Not Applicable

ND - Not Detected    NS - Not Sampled

TABLE 3

## SUMMARY OF GROUNDWATER RESULTS • EPA 8260 &amp; MODIFIED EPA 8100

SAMPLE DATE: MAY 13, 1997

PAULINE WHIPPLE PROPERTY • RICHMOND VERMONT

Page 2 of 2

SAMPLE LOCATION	SAMPLE NUMBER	SAMPLE MATRIX	COMPOUND	RESULT	UNIT	GROUND WATER ENFORCEMENT STANDARD (ug/L)*	PREVENTATIVE ACTION LIMIT* ACTION LIMIT (ug/L)*	LABORATORY DETECTION LIMIT
MW-3	WS-03	WATER	Benzene	ND	ug/l	5.0	0.5	1.0 ug/l
			Toluene	ND	ug/l	2420	1210	1.0 ug/l
			Ethylbenzene	ND	ug/l	680	340	1.0 ug/l
			Total Xylenes	3.5	ug/l	400	200	2.0 ug/kg
			sec-Butylbenzene	ND	ug/l	N/A	N/A	1.0 ug/kg
			Isopropylbenzene	ND	ug/l	N/A	N/A	1.0 ug/kg
			p-Isopropyltoluene	ND	ug/l	N/A	N/A	1.0 ug/kg
			Napthalene	11.4	ug/l	N/A	N/A	5.0 ug/kg
			n-Propylbenzene	ND	ug/l	N/A	N/A	1.0 ug/kg
			1,2,4-Trimethylbenzene	6.4	ug/l	N/A	N/A	1.0 ug/kg
			1,3,5-Trimethylbenzene	3.1	ug/l	N/A	N/A	1.0 ug/kg
SB-09 & 10 COMPOSITE Waste Analysis	SS-04	SOIL	TPH	NS	mg/l	N/A	N/A	NS
			Benzene	ND	ug/kg	N/A	N/A	20 ug/kg
			Toluene	327	ug/kg	N/A	N/A	20 ug/kg
			Ethylbenzene	1570	ug/kg	N/A	N/A	20 ug/kg
			Total Xylenes	10300	ug/kg	N/A	N/A	40 ug/kg
			sec-Butylbenzene	3840	ug/kg	N/A	N/A	20 ug/kg
			Isopropylbenzene	1880	ug/kg	N/A	N/A	20 ug/kg
			p-Isopropyltoluene	8090	ug/kg	N/A	N/A	20 ug/kg
			Napthalene	6920	ug/kg	N/A	N/A	100 ug/kg
			n-Propylbenzene	5260	ug/kg	N/A	N/A	20 ug/kg
			1,2,4-Trimethylbenzene	21300	ug/kg	N/A	N/A	20 ug/kg
	SS-02	SOIL	1,3,5-Trimethylbenzene	10300	ug/kg	N/A	N/A	20 ug/kg
			TPH	4920	mg/kg	N/A	N/A	10 mg/kg

## Notes:

\* From the Vermont Department of Environmental Conservation's, "Chapter 12 Groundwater Protection Rule and Strategy, Effective Date September 29, 1988".

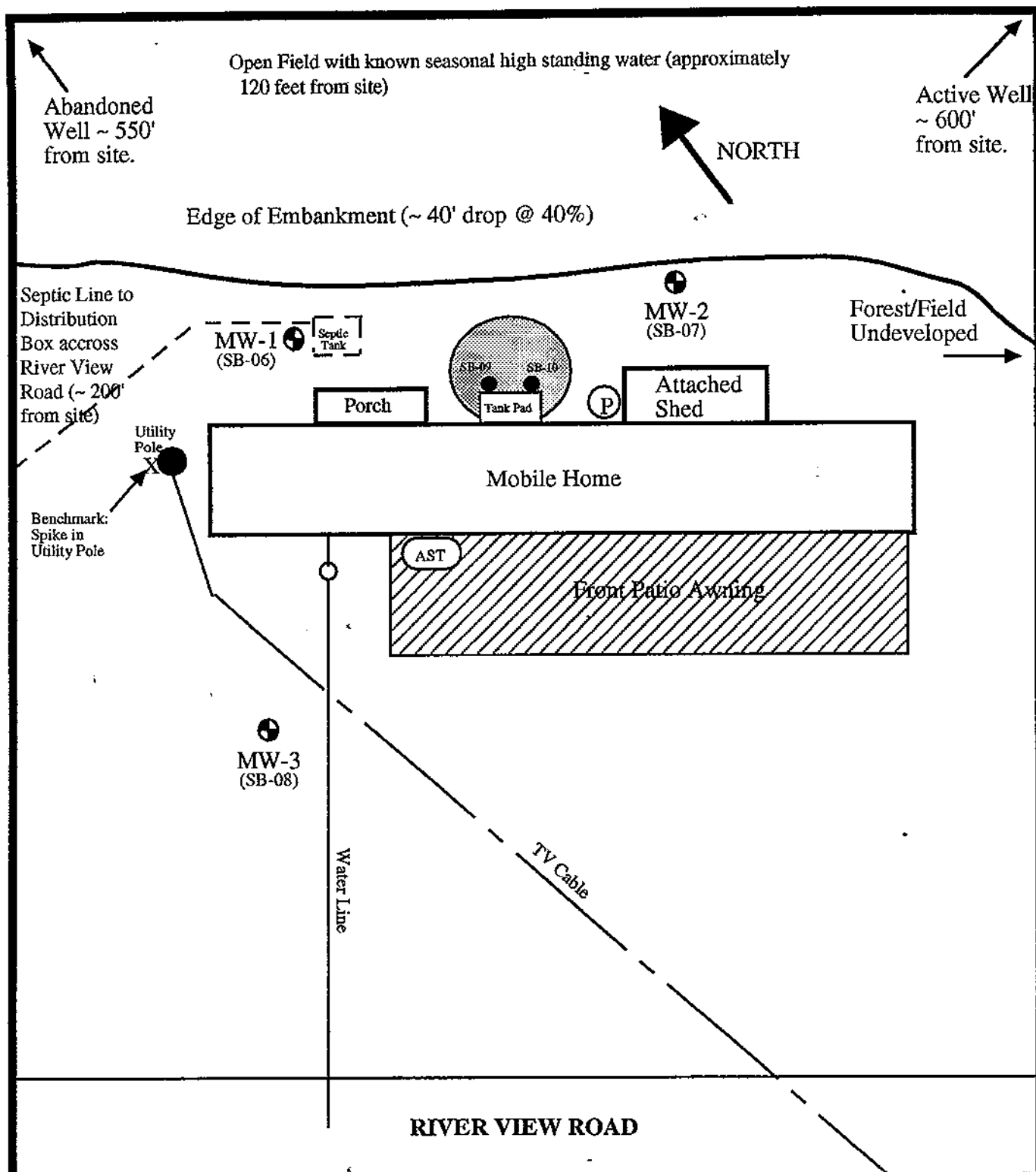
Shade areas indicate enforcement standard exceedances.

TBQ - Trace Below Quantitation Limit    N/A - Not Applicable

ND - Not Detected

NS - Not Sampled

## FIGURES



**KEY:**

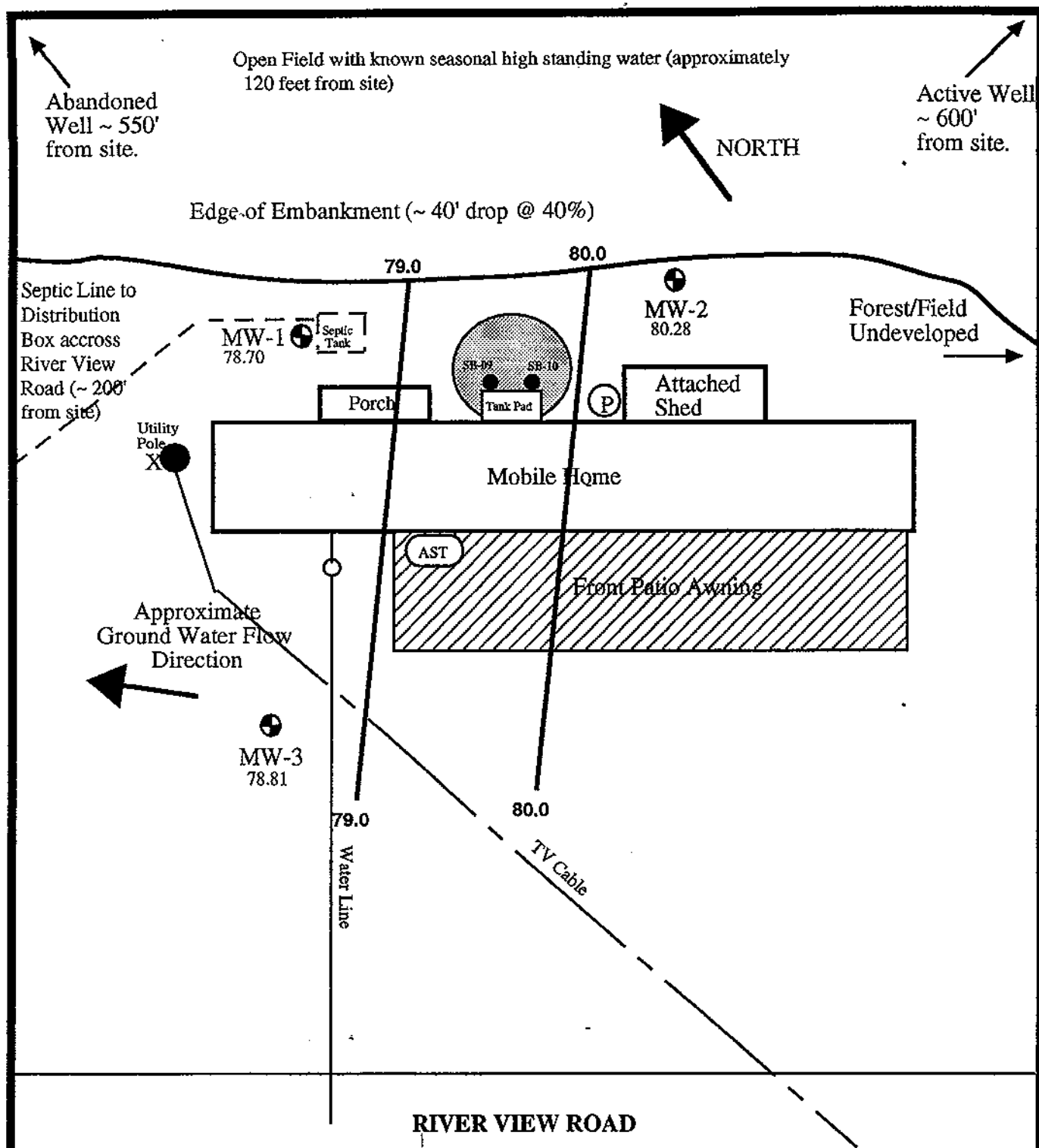
- ⊕ Monitoring Well
- Soil Boring Location
- - Septic Tank & Distribution Lines
- Ⓟ Propane Tank

**Figure Number 1  
Site Diagram  
Pauline Whipple Property**

Approximate Scale: 1" = 15'  
Drawn by: J. Roman

ATC Associates Inc.  
P.O. Box 3, Richmond, VT  
(802) 434-2113

Project # 42238-0001  
May, 1997



# KEY:

- Monitoring Well w/ GW Elevation 78.81
- 80.0 GW Contour in feet
- Soil Boring Location
- Septic Tank & Distribution Lines

## Figure Number 2 Ground Water Contour Map

Pauline Whipple Property  
Approximate Scale: 1" = 15'  
Drawn by: J. Roman

ATC Associates Inc.

P.O. Box 3, Richmond, VT  
(802) 434-2113

Project # 42238-0001

Sampling Date: May 13, 1997

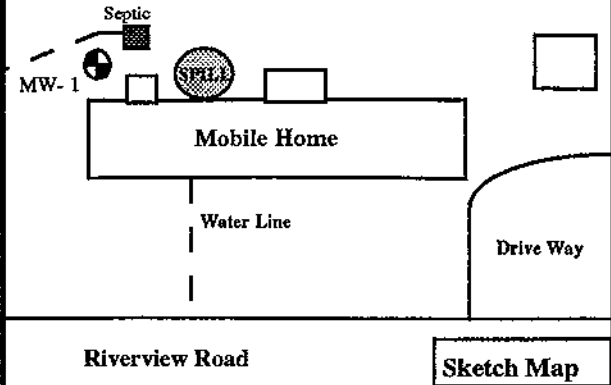
## Monitoring Well Logs



**ATC Associates Inc.  
Monitoring Well Log**

**WELL NUMBER**        MW-1   

**PROJECT NAME** Whipple Residence/State Farm Insurance  
**PROJECT #** 42238-0001  
**LOCATION** 52 Riverview Drive, Richmond VT  
**DATE DRILLED** 05/12/97      **BORING DEPTH** 20.0'  
**DIAMETER** 1.5"  
**SCREEN DIA.** 1.5"    **LENGTH** 10.0'    **SLOT SIZE** 0.20  
**CASING DIA.** 1.5"    **LENGTH** 13.0'      **TYPE** PVC  
**DRILLING CO.** Green Mountain Boring  
**DRILLING METHOD** HSA  
**DRILLER** Ron Garneau      **LOG BY** ICR



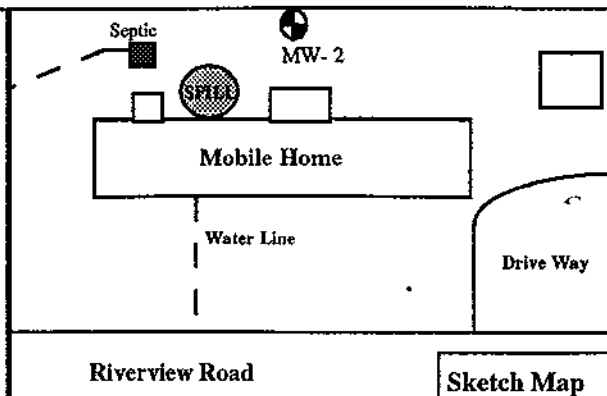
DEPTH IN FEET	WELL CONSTRUCTION	NOTES	PID/OVM READINGS	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
GRADE	TOP CAP			
	PVC STICK UP			
	BENTONITE			
5	NATIVE FILL			
10	SCREEN (0.20)	NON DETECT		10.0 - 12.0' (4,4,3,4) 17" Fine & very fine Brown SAND. Damp and Loose. No odor.
15	FILTER SOCK	NON DETECT		15.0' - 17.0' (Grab sample) Fine grey-brown fine & very fine SAND with grey SILT. Moist and slightly sticky. No odor.
20	NATIVE FILL	NON DETECT		19.0 - 21.0' (3,5,8,9) 24" R Olive SILT with trace very fine SAND. Slightly plastic, and very moist. No Odor.
25	BOTTOM CAP	E.O.B. 20.0'		
30		NON DETECT (borehole)		
35				
40				

WELL CONSTRUCTION: Screen 20.0' to 10.0'  
Riser 10.0' to +2.86'  
Plug 3.0' to 2.0'  
Native 20.0' to 3.0' & 2.0' to 0.0'  
Filter Fabric 20.0' to 8.0'

**ATC Associates Inc.  
Monitoring Well Log**

**WELL NUMBER** MW-2

**PROJECT NAME** Whipple Residence/State Farm Insurance  
**PROJECT #** 42238-0001  
**LOCATION** 52 Riverview Drive, Richmond VT  
**DATE DRILLED** 05/12/97 **BORING DEPTH** 20.5'  
**DIAMETER** 1.5"  
**SCREEN DIA.** 1.5" **LENGTH** 10.0' **SLOT SIZE** 0.20  
**CASING DIA.** 1.5" **LENGTH** 13.0' **TYPE** PVC  
**DRILLING CO.** Green Mountain Boring  
**DRILLING METHOD** HSA  
**DRILLER** Ron Garneau **LOG BY** ICR

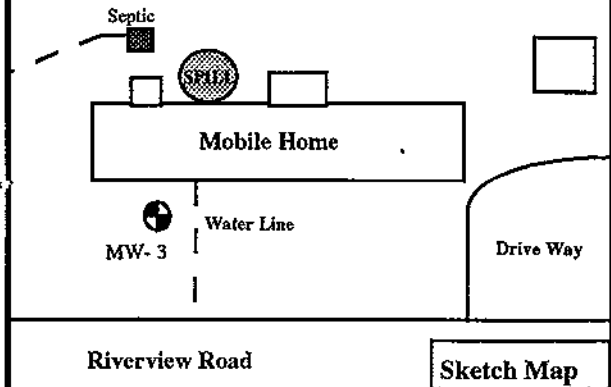


DEPTH IN FEET	WELL CONSTRUCTION	NOTES	PID/OVM READINGS	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
GRADE	TOP CAP			
	PVC STICK UP			
	BENTONITE			
5	NATIVE FILL			
10	SCREEN (0.20)			
	FILTER SOCK			
15	NATIVE FILL		NON DETECT	15.0' - 17.0' (3,4,6,9) 23" R Olive & olive-yellow very fine SAND with SILT, slightly moist and friable. No odor.
20	BOTTOM CAP		NON DETECT E.O.B. 20.5'	20.0 - 22.0' (3,6,7,9) 24" R Olive very fine SAND with SILT with trace very fine SAND over light grey to olive SILT. Firm over slightly plastic, and moist. No odor.
25			NON DETECT (borehole)	
30				
35				
40				
				WELL CONSTRUCTION: Screen 20.5' to 10.5' Riser 10.5' to + 3.0' Plug 3.0' to 2.0' Native 20.0' to 3.0' & 2.0' to 0.0' Filter Fabric 20.5' to 8.5'

**ATC Associates Inc.  
Monitoring Well Log**

**WELL NUMBER**     MW-3    

PROJECT NAME Whipple Residence/State Farm Insurance  
 PROJECT # 42238-0001  
 LOCATION 52 Riverview Drive, Richmond VT  
 DATE DRILLED 05/12/97 BORING DEPTH 20.0'  
 DIAMETER 1.5"  
 SCREEN DIA. 1.5" LENGTH 15.0' SLOT SIZE 0.20  
 CASING DIA. 1.5" LENGTH 8.0' TYPE PVC  
 DRILLING CO. Green Mountain Boring  
 DRILLING METHOD HSA  
 DRILLER Ron Garneau LOG BY ICR



DEPTH IN FEET	WELL CONSTRUCTION	NOTES	PID/OVM READINGS	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
GRADE	TOP CAP PVC STICK UP			
	BENTONITE			
5	NATIVE FILL		NON DETECT	5.0' - 7.0' (5,5,7,6) 24" R Olive & brown SILT with some fine & very fine SAND. Slightly sticky, very moist to wet. No odor.
10	SCREEN (0.20) FILTER SOCK			
15	FILTER SAND NATIVE FILL		NON DETECT	15.0' - 17.0' (5,6,10,11) 24" R Olive & olive-yellow SILT with few very fine SAND lenses and common yellow mottles. Very Moist, firm and also slightly plastic. No odor.
20	BOTTOM CAP		NON DETECT E.O.B. 20.0' NON DETECT (borehole)	20.0 - 22.0' (6,11,6,8) 24" R Olive SILT with few very fine SAND lenses for 10" over grey SILT-CLAY. Very moist and slightly plastic throughout. No odor.
25				
30				
35				
40				
				WELL CONSTRUCTION: Screen 20.0' to 5.0' Riser 5.0' to +2.1' Plug 3.0' to 2.0' Native 20.0' to 16.0' & 14.0 to 3.0 & 2.0' to 0.0' Filter Sand 16.0 to 14.0 Filter Fabric 20.0' to 4.0'

## Soil & Ground Water Laboratory Results



**ENDYNE, INC.**

**Laboratory Services**

32 James Brown Drive  
Williston, Vermont 05495  
(802) 879-4333  
FAX 879-7103

**REPORT OF LABORATORY ANALYSIS**

CLIENT: ATC Associates  
PROJECT NAME: State Farm Insurance  
REPORT DATE: May 20, 1997  
DATE SAMPLED: May 12, 1997

PROJECT CODE: ATCA1093  
REF. #: 103,464 - 103,468

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody.

Chain of custody indicated the water samples were preserved with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced method and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced method.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate recovery data was determined to be within Laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.  
Laboratory Director

enclosures



**ENDYNE, INC.**

**Laboratory Services**

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LABORATORY REPORT

DATE: May 20, 1997  
CLIENT: ATC Associates  
PROJECT: State Farm Insurance  
PROJECT CODE: ATCA2091  
COLLECTED BY: John Roman  
DATE SAMPLED: May 12-13, 1997  
DATE RECEIVED: May 13, 1997

Parameter

Reference Number

103,460

Flashpoint (Degrees Fahrenheit)

>158.

Sample ID:

103,460: SS-01 (SB-10 1-2 Feet); 2:30

Reviewed by: \_\_\_\_\_



**ENDYNE, INC.**

**Laboratory Services**

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**LABORATORY REPORT**

**EPA METHOD 8260 SOIL MATRIX**

CLIENT: ATC Associates  
PROJECT NAME: State Farm Insurance  
REPORT DATE: May 20, 1997  
DATE SAMPLED: May 12, 1997  
DATE RECEIVED: May 13, 1997  
ANALYSIS DATE: May 19, 1997

PROJECT CODE: ATCA1093  
REF.#: 103,468  
STATION: SS-04 (SB-09+10 Composite)  
TIME SAMPLED: 4:00  
SAMPLER: John Roman

Parameter	Detection Limit (ug/kg) <sup>1</sup>	Result as received(ug/kg)	Parameter	Detection Limit (ug/kg)	Result as received(ug/kg)
Benzene	20	ND <sup>2</sup>	1,3-Dichloropropane	20	ND
Bromobenzene	20	ND	2,2-Dichloropropane	20	ND
Bromochloromethane	40	ND	1,1-Dichloropropene	20	ND
Bromodichloromethane	20	ND	cis-1,3-Dichloropropene	20	ND
Bromoform	20	ND	trans-1,3-Dichloropropene	20	ND
Bromomethane	100	ND	Ethylbenzene	20	1,570.
n-Butylbenzene	20	ND	Hexachlorobutadiene	100	ND
sec-Butylbenzene	20	3,840.	Isopropylbenzene	20	1,880.
tert-Butylbenzene	20	ND	p-Isopropyltoluene	20	8,090.
Carbon Tetrachloride	20	ND	Methylene Chloride	100	ND
Chlorobenzene	20	ND	Naphthalene	100	6,920.
Chloroethane	100	ND	n-Propylbenzene	20	5,260.
Chloroform	20	ND	Styrene	40	ND
Chloromethane	200	ND	1,1,1,2-Tetrachloroethane	40	ND
2&4-Chlorotoluene	40	ND	1,1,2,2-Tetrachloroethane	40	ND
Dibromochloromethane	20	ND	Tetrachloroethene	20	ND
1,2-Dibromo-3-Chloropropane	40	ND	Toluene	20	327.
1,2-Dibromoethane	40	ND	1,2,3-Trichlorobenzene	40	ND
Dibromomethane	40	ND	1,2,4-Trichlorobenzene	40	ND
1,2-Dichlorobenzene	20	ND	1,1,1-Trichloroethane	20	ND
1,3-Dichlorobenzene	20	ND	1,1,2-Trichloroethane	20	ND
1,4-Dichlorobenzene	20	ND	Trichloroethene	20	ND
Dichlorodifluoromethane	200	ND	Trichlorofluoromethane	40	ND
1,1-Dichloroethane	20	ND	1,2,3-Trichloropropane	20	ND
1,2-Dichloroethane	20	ND	1,2,4-Trimethylbenzene	20	21,300.
1,1-Dichloroethene	20	ND	1,3,5-Trimethylbenzene	20	10,800.
cis-1,2-Dichloroethene	20	ND	Vinyl Chloride	100	ND
trans-1,2-Dichloroethene	20	ND	Total Xylenes	40	10,300.
1,2-Dichloropropane	20	ND	MTBE	40	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: > 10

PERCENT SOLID: 88.%

**ANALYTICAL SURROGATE RECOVERY:**

Dibromofluoromethane : 98.%

Toluene-d8 : 91.%

4-Bromofluorobenzene : 101.%

**NOTES:**

1 Detection limit raised due to high levels of contaminants. Sample run at a 5% dilution.

2 None detected



**ENDYNE, INC.**

**Laboratory Services**

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**LABORATORY REPORT**

**EPA METHOD 8260 SOIL MATRIX**

CLIENT: ATC Associates  
PROJECT NAME: State Farm Insurance  
REPORT DATE: May 20, 1997  
DATE SAMPLED: May 12, 1997  
DATE RECEIVED: May 13, 1997  
ANALYSIS DATE: May 19, 1997

PROJECT CODE: ATCA1093  
REF.#: 103,464  
STATION: SS-03 (SB-06, 19-21 Feet)  
TIME SAMPLED: 10:30  
SAMPLER: John Roman

Parameter	Detection Limit (ug/kg)	Result as received(ug/kg)	Parameter	Detection Limit (ug/kg)	Result as received(ug/kg)
Benzene	10	ND <sup>1</sup>	1,3-Dichloropropane	10	ND
Bromobenzene	10	ND	2,2-Dichloropropane	10	ND
Bromochloromethane	20	ND	1,1-Dichloropropene	10	ND
Bromodichloromethane	10	ND	cis-1,3-Dichloropropene	10	ND
Bromoform	10	ND	trans-1,3-Dichloropropene	10	ND
Bromomethane	50	ND	Ethylbenzene	10	ND
n-Butylbenzene	10	ND	Hexachlorobutadiene	50	ND
sec-Butylbenzene	10	ND	Isopropylbenzene	10	ND
tert-Butylbenzene	10	ND	p-Isopropyltoluene	10	ND
Carbon Tetrachloride	10	ND	Methylene Chloride	50	ND
Chlorobenzene	10	ND	Naphthalene	50	ND
Chloroethane	50	ND	n-Propylbenzene	10	ND
Chloroform	10	ND	Styrene	20	ND
Chloromethane	100	ND	1,1,1,2-Tetrachloroethane	20	ND
2&4-Chlorotoluene	20	ND	1,1,2,2-Tetrachloroethane	20	ND
Dibromochloromethane	10	ND	Tetrachloroethene	10	ND
1,2-Dibromo-3-Chloropropane	20	ND	Toluene	10	ND
1,2-Dibromoethane	20	ND	1,2,3-Trichlorobenzene	20	ND
Dibromomethane	20	ND	1,2,4-Trichlorobenzene	20	ND
1,2-Dichlorobenzene	10	ND	1,1,1-Trichloroethane	10	ND
1,3-Dichlorobenzene	10	ND	1,1,2-Trichloroethane	10	ND
1,4-Dichlorobenzene	10	ND	Trichloroethene	10	ND
Dichlorodifluoromethane	100	ND	Trichlorofluoromethane	20	ND
1,1-Dichloroethane	10	ND	1,2,3-Trichloropropane	10	ND
1,2-Dichloroethane	10	ND	1,2,4-Trimethylbenzene	10	ND
1,1-Dichloroethene	10	ND	1,3,5-Trimethylbenzene	10	ND
cis-1,2-Dichloroethene	10	ND	Vinyl Chloride	50	ND
trans-1,2-Dichloroethene	10	ND	Total Xylenes	20	ND
1,2-Dichloropropane	10	ND	MTBE	20	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

PERCENT SOLID: 75.0%

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane : 99.0%

Toluene-d8 : 100.0%

4-Bromofluorobenzene : 114.0%

**NOTES:**

1 None detected





**ENDYNE, INC.**

**Laboratory Services**

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**LABORATORY REPORT**

**EPA METHOD 8260 WATER MATRIX**

CLIENT: ATC Associates  
PROJECT NAME: State Farm Insurance  
REPORT DATE: May 20, 1997  
DATE SAMPLED: May 13, 1997  
DATE RECEIVED: May 13, 1997  
ANALYSIS DATE: May 19, 1997

PROJECT CODE: ATCA1093  
REF.#: 103,465  
STATION: WS-01 (MW-2)  
TIME SAMPLED: 13:00  
SAMPLER: John Roman

<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)	<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)
Benzene	1	TBQ <sup>1</sup>	1,3-Dichloropropane	1	ND
Bromobenzene	1	ND <sup>2</sup>	2,2-Dichloropropane	1	ND
Bromochloromethane	2	ND	1,1-Dichloropropene	1	ND
Bromodichloromethane	1	ND	cis-1,3-Dichloropropene	1	ND
Bromoform	1	ND	trans-1,3-Dichloropropene	1	ND
Bromomethane	5	ND	Ethylbenzene	1	TBQ
n-Butylbenzene	1	ND	Hexachlorobutadiene	5	ND
sec-Butylbenzene	1	ND	Isopropylbenzene	1	ND
tert-Butylbenzene	1	ND	p-Isopropyltoluene	1	ND
Carbon Tetrachloride	1	ND	Methylene Chloride	5	ND
Chlorobenzene	1	ND	Naphthalene	5	ND
Chloroethane	5	ND	n-Propylbenzene	1	ND
Chloroform	1	ND	Styrene	2	ND
Chloromethane	10	ND	1,1,1,2-Tetrachloroethane	2	ND
2&4-Chlorotoluene	2	ND	1,1,2,2-Tetrachloroethane	2	ND
Dibromochloromethane	1	ND	Tetrachloroethene	1	ND
1,2-Dibromo-3-Chloropropane	2	ND	Toluene	1	3.0
1,2-Dibromoethane	2	ND	1,2,3-Trichlorobenzene	2	ND
Dibromomethane	2	ND	1,2,4-Trichlorobenzene	2	ND
1,2-Dichlorobenzene	1	ND	1,1,1-Trichloroethane	1	ND
1,3-Dichlorobenzene	1	ND	1,1,2-Trichloroethane	1	ND
1,4-Dichlorobenzene	1	ND	Trichloroethene	1	ND
Dichlorodifluoromethane	10	ND	Trichlorofluoromethane	2	ND
1,1-Dichloroethane	1	ND	1,2,3-Trichloropropane	1	ND
1,2-Dichloroethane	1	ND	1,2,4-Trimethylbenzene	1	4.0
1,1-Dichloroethene	1	ND	1,3,5-Trimethylbenzene	1	2.0
cis-1,2-Dichloroethene	1	ND	Vinyl Chloride	5	ND
trans-1,2-Dichloroethene	1	ND	Total Xylenes	2	5.3
1,2-Dichloropropane	1	ND	MTBE	2	ND

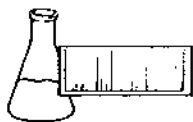
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

**ANALYTICAL SURROGATE RECOVERY:**

Dibromofluoromethane : 103. %  
Toluene-d8 : 97. %  
4-Bromofluorobenzene : 108. %

**NOTES:**

- 1 Trace below quantitation limit
- 2 None detected



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**LABORATORY REPORT**

**EPA METHOD 8260 WATER MATRIX**

CLIENT: ATC Associates  
PROJECT NAME: State Farm Insurance  
REPORT DATE: May 20, 1997  
DATE SAMPLED: May 13, 1997  
DATE RECEIVED: May 13, 1997  
ANALYSIS DATE: May 19, 1997

PROJECT CODE: ATCA1093  
REF.#: 103,466  
STATION: WS-03 (MW-3)  
TIME SAMPLED: 13:30  
SAMPLER: John Roman

Parameter	Detection Limit (ug/L)	Result (ug/L)	Parameter	Detection Limit (ug/L)	Result (ug/L)
Benzene	1	ND <sup>1</sup>	1,3-Dichloropropane	1	ND
Bromobenzene	1	ND	2,2-Dichloropropane	1	ND
Bromochloromethane	2	ND	1,1-Dichloropropene	1	ND
Bromodichloromethane	1	ND	cis-1,3-Dichloropropene	1	ND
Bromoform	1	ND	trans-1,3-Dichloropropene	1	ND
Bromomethane	5	ND	Ethylbenzene	1	ND
n-Butylbenzene	1	ND	Hexachlorobutadiene	5	ND
sec-Butylbenzene	1	ND	Isopropylbenzene	1	ND
tert-Butylbenzene	1	ND	p-Isopropyltoluene	1	ND
Carbon Tetrachloride	1	ND	Methylene Chloride	5	ND
Chlorobenzene	1	ND	Naphthalene	5	11.4
Chloroethane	5	ND	n-Propylbenzene	1	ND
Chloroform	1	ND	Styrene	2	ND
Chloromethane	10	ND	1,1,1,2-Tetrachloroethane	2	ND
2&4-Chlorotoluene	2	ND	1,1,2,2-Tetrachloroethane	2	ND
Dibromochloromethane	1	ND	Tetrachloroethene	1	ND
1,2-Dibromo-3-Chloropropane	2	ND	Toluene	1	ND
1,2-Dibromoethane	2	ND	1,2,3-Trichlorobenzene	2	ND
Dibromomethane	2	ND	1,2,4-Trichlorobenzene	2	ND
1,2-Dichlorobenzene	1	ND	1,1,1-Trichloroethane	1	ND
1,3-Dichlorobenzene	1	ND	1,1,2-Trichloroethane	1	ND
1,4-Dichlorobenzene	1	ND	Trichloroethene	1	ND
Dichlorodifluoromethane	10	ND	Trichlorofluoromethane	2	ND
1,1-Dichloroethane	1	ND	1,2,3-Trichloropropane	1	ND
1,2-Dichloroethane	1	ND	1,2,4-Trimethylbenzene	1	6.4
1,1-Dichloroethene	1	ND	1,3,5-Trimethylbenzene	1	3.1
cis-1,2-Dichloroethene	1	ND	Vinyl Chloride	5	ND
trans-1,2-Dichloroethene	1	ND	Total Xylenes	2	3.5
1,2-Dichloropropane	1	ND	MTBE	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 8

**ANALYTICAL SURROGATE RECOVERY:**

Dibromofluoromethane : 104. %  
Toluene-d8 : 94. %  
4-Bromofluorobenzene : 111. %

**NOTES:**

1 None detected



**ENDYNE, INC.**

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**LABORATORY REPORT**

**EPA METHOD 8260 WATER MATRIX**

CLIENT: ATC Associates  
PROJECT NAME: State Farm Insurance  
REPORT DATE: May 20, 1997  
DATE SAMPLED: May 13, 1997  
DATE RECEIVED: May 13, 1997  
ANALYSIS DATE: May 19, 1997

PROJECT CODE: ATCA1093  
REF.#: 103,467  
STATION: WS-04 (Field Blank)  
TIME SAMPLED: 14:00  
SAMPLER: John Roman

<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)	<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)
Benzene	1	ND <sup>1</sup>	1,3-Dichloropropane	1	ND
Bromobenzene	1	ND	2,2-Dichloropropane	1	ND
Bromochloromethane	2	ND	1,1-Dichloropropene	1	ND
Bromodichloromethane	1	ND	cis-1,3-Dichloropropene	1	ND
Bromoform	1	ND	trans-1,3-Dichloropropene	1	ND
Bromomethane	5	ND	Ethylbenzene	1	ND
n-Butylbenzene	1	ND	Hexachlorobutadiene	5	ND
sec-Butylbenzene	1	ND	Isopropylbenzene	1	ND
tert-Butylbenzene	1	ND	p-Isopropyltoluene	1	ND
Carbon Tetrachloride	1	ND	Methylene Chloride	5	ND
Chlorobenzene	1	ND	Naphthalene	5	ND
Chloroethane	5	ND	n-Propylbenzene	1	ND
Chloroform	1	ND	Styrene	2	ND
Chloromethane	10	ND	1,1,1,2-Tetrachloroethane	2	ND
2&4-Chlorotoluene	2	ND	1,1,2,2-Tetrachloroethane	2	ND
Dibromochloromethane	1	ND	Tetrachloroethene	1	ND
1,2-Dibromo-3-Chloropropane	2	ND	Toluene	1	ND
1,2-Dibromoethane	2	ND	1,2,3-Trichlorobenzene	2	ND
Dibromomethane	2	ND	1,2,4-Trichlorobenzene	2	ND
1,2-Dichlorobenzene	1	ND	1,1,1-Trichloroethane	1	ND
1,3-Dichlorobenzene	1	ND	1,1,2-Trichloroethane	1	ND
1,4-Dichlorobenzene	1	ND	Trichloroethene	1	ND
Dichlorodifluoromethane	10	ND	Trichlorofluoromethane	2	ND
1,1-Dichloroethane	1	ND	1,2,3-Trichloropropane	1	ND
1,2-Dichloroethane	1	ND	1,2,4-Trimethylbenzene	1	ND
1,1-Dichloroethene	1	ND	1,3,5-Trimethylbenzene	1	ND
cis-1,2-Dichloroethene	1	ND	Vinyl Chloride	5	ND
trans-1,2-Dichloroethene	1	ND	Total Xylenes	2	ND
1,2-Dichloropropane	1	ND	MTBE	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

**ANALYTICAL SURROGATE RECOVERY:**

Dibromofluoromethane : 115.%  
Toluene-d8 : 95.%  
4-Bromofluorobenzene : 111.%

**NOTES:**

1 None detected



## CHAIN-OF-CUSTODY RECORD

006182

[illegible]

Relinquished by: Signature <i>John C. Roman</i>	Received by: Signature <i>Jana M. Chambers</i>	Date/Time <i>5-13-97 2:15</i>
Relinquished by: Signature	Received by: Signature	Date/Time

### Requested Analyses

Requested Analyses											
1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD <sub>5</sub>	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										



**ENDYNE, INC.**

**Laboratory Services**

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**REPORT OF LABORATORY ANALYSIS**

**CLIENT:** ATC Associates  
**PROJECT NAME:** State Farm Insurance  
**DATE REPORTED:** May 21, 1997  
**DATE SAMPLED:** May 12, 1997  
**REVISED REPORT:** May 29, 1997

**PROJECT CODE:** ATCA1092  
**REF. #:** 103,461 - 103,463

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody indicated sample preservation with ice.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

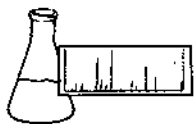
Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy were monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry B. Locker, Ph.D.  
Laboratory Director

enclosures



**ENDYNE, INC.**

**Laboratory Services**

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**LABORATORY REPORT**

**TOTAL PETROLEUM HYDROCARBONS (TPH) BY MODIFIED EPA METHOD 8100**

DATE: May 21, 1997  
CLIENT: ATC Associates  
PROJECT: State Farm Insurance  
PROJECT CODE: ATCA1092  
COLLECTED BY: John Roman  
DATE SAMPLED: May 12-13, 1997  
DATE RECEIVED: May 13, 1997  
REVISED REPORT: May 29, 1997

Reference #	Sample ID	Concentration (mg/kg) <sup>1</sup>
103,461	SS-02; 5/12/97; 3:45	4,920.
103,462	SS-03; 5/12/97; 10:30	ND <sup>2</sup>
103,463	WS-02; 5/13/97; 1300	TBQ <sup>3,4</sup>

**Notes:**

- 1 Method detection limit is 10.0 mg/kg.
- 2 None Detected
- 3 Trace Below Quantitation Limit
- 4 Method detection limit for water is 0.8 mg/L



### CHAIN-OF-CUSTODY RECORD

006186

[illegible]

Relinquished by: Signature <i>John C. Roman</i>	Received by: Signature <i>James M. Chandler</i>	Date/Time <i>5-13-97 2:15</i>
Relinquished by: Signature	Received by: Signature	Date/Time

### Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 870 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418-1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD <sub>5</sub>	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										